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(54) HEADPHONE WITH CODE WINDER DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To attain easy retraction of an input code into winder device and prevent the flying play from hitting the user by the when the code is wound.

SOLUTION: In a headphone with a code winder device, a reel 14 is energized to wind an input code 9 in an arrow marked direction C by return power of a spiral spring 15, but the reel 14 is held and lamped by the piece 21b of a holding piece 21 falling into a stepped part 14c by tension of a coil spring 22. When a connector terminals 8a of an input plug 8 is inserted into an insertion hole 2b, a tip of the terminal 8a touches an operation part 21a so as to rotate the piece 21 clockwise and release a holding against the stepped part 14c, so that the reel 14 is rotated in the direction C by the return power of the spring 15 to wind the code 9.

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CLAIMS

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[Claim(s)]  
[Claim 1] Housing which contained the electroacoustic transduction component, and  
the input code by which the end was connected to said electroacoustic transduction  
component, and the other end was connected to the input plug. The rolling-up means  
energized so that it might be built in said housing and said input code might be rolled  
round inside said housing. A stop means to stop so that it may be annexed to said  
rolling-up means, and the drawer from said rolling-up means of said input code may be  
permitted and rolling up by said interior of housing of said input code by said rolling-up  
means may be prevented. It has a maintenance means to hold the input plug of said  
input code. The headphone with a code take-up motion characterized by constituting  
so that said rolling-up means may roll round said input code inside said housing by the  
actuation inserted in order to make the input plug of said input code hold for said  
maintenance means being interlocked with, and canceling said stop means.

[Claim 2] Said maintenance means are headphone with a code take-up motion according to claim 1 characterized by constituting so that it may have a maintenance spring and the narrow diameter portion near the tip of an input plug may be held.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Field of the Invention] This invention relates to a code or the thing it was made not to produce an injury especially by the plug on the occasion of said code rolling up about the headphone which the code take-up motion which rolls round input code in housing attached in more detail.

#### [0002]

[Description of the Prior Art] In recent years, also outdoors, many headphone came to be used with development of a portable audio equipment. When carrying these headphone, processing of input code is troublesome. There are some which built in the take-up motion which rolls round the input code of an earphone in radio with an earphone as a precedent. It is energized so that it may be rolled round towards the interior of a case by the force of a spring. a code -- spiral spring -- When there is a stop means for stopping only the rolling-up direction, and this stop means is resisted at the time of use of an earphone, and using a code for required die length, pulling out and containing if the carbon button of which this stop means is canceled is pushed -- spiral spring -- the code was rolled round by the force of a spring

#### [0003]

[Problem(s) to be Solved by the Invention] However, when such a means is applied to housing of headphone as it is, there is a problem. Because, a vigor complementary has a possibility that an input plug may be injured in a face or an eye when the input plug of an end is drawn if the vigor of rolling up of a take-up motion is strong when it is going to roll round input code in housing and a stop means is canceled, equipping a lug with headphone.

[0004] As a means which prevents this, when the invention-in-this-application person etc. removed headphone flatly and a head strap was not bent previously, he proposed a means by which a stop of a stop means could not be canceled. However, many headphone of the lug credit type which does not use a head strap come to be used recently, and there are some which cannot apply the configuration of the above-mentioned proposal.

[0005] This invention can be applied also to the thing of a format which does not use a head strap like such a lug credit type, and it is going to offer headphone with a code

take-up motion without a possibility that it may be injured also at the time of rolling up of input code.

[0006]

[Means for Solving the Problem] The headphone with a code take-up motion of this invention for attaining this technical problem Housings which contained the electroacoustic transduction component, and the input code by which the end was connected to said electroacoustic transduction component, and the other end was connected to the input plug, The rolling-up means energized so that it might be built in said housing and said input code might be rolled round inside said housing, A stop means to stop so that it may be annexed to said rolling-up means, and the drawer from said rolling-up means of said input code may be permitted and rolling up by said interior of housing of said input code by said rolling-up means may be prevented, It has a maintenance means to hold the input plug of said input code. It is characterized by constituting so that said rolling-up means may roll round said input code inside said housing by the actuation inserted in order to make the input plug of said input code hold for said maintenance means being interlocked with, and canceling said stop means.

[0007] If an input plug is made to hold for a maintenance means by this configuration in case input code is rolled round, since a stop means to by which it has stopped so that it may prevent energizing so that a rolling-up means may roll round input code inside housing will cancel, input code is rolled round by the rolling-up means, but since an input plug is held previously at a maintenance means, it acts so that an input plug may be hung by input code, and may not draw and the body may not contact.

[0008]

[Embodiment of the Invention] Hereafter, 1 operation gestalt of this invention is explained based on a drawing. Drawing 1 The external view of the headphone with a code take-up motion of 1 operation gestalt of this invention, The external view of the place where drawing 2 similarly finished rolling up of the code, the top view where drawing 3 similarly looked at the internal structure, The top view showing the condition of drawing 4 having inserted the input plug in the maintenance means from the condition of drawing 3, and having canceled the stop means, The sectional view of a near housing part where drawing 5 (a) similarly builds in the rolling-up means, A perspective view in case that partial expanded sectional view and drawing 6 are the same, the perspective view of that housing part and drawing 7 are the same and this drawing (b) tends to equip a lug with that housing part, and drawing 8 are the perspective views showing the condition of similarly having equipped with these headphone.

[0009] In each drawing, headphone constitute a case from anterior part housing 1 and rear housing 2, the loudspeaker unit 3 which is an electroacoustic transduction component is attached in the anterior part housing 1, and sound hole 1a which emits

the sound pressure generated from a loudspeaker unit 3 to the front face of the loudspeaker unit 3 of the anterior part housing 1 is prepared. Since the front face of anterior part housing contacts a lug, the year pad 4 made with the ingredient gentle to the skin has been formed making a sound [ cloth / the foaming polyurethane formed so that air bubbles might continue, for example ] penetrate.

[0010] First, if the configuration as headphone is explained previously, the two pivot sections 5 will be formed around rear housing 2, pivot 5a will project from this pivot section 5 to the method of inside, and a spring 6 will be hung on this pivot 5a. The lug credit 7 whose rotation made carry out fitting of the boss which is not illustrated to pivot 5a, and was enabled is energized with said spring 6 so that tip 7a may always be energized at the anterior part housing 1 side. To pivot 5a, the lug credit 7 is press section 7b, prepares skid 7c here, and by pressing this part with a finger, it moves the opposite side of tip 7a so that tip 7a may separate from the anterior part housing 1 like drawing 7.

[0011] Usually, since a lug on either side is equipped with headphone, input code 9 is drawn in one case, for example, case (b) for left ears, from the input plug 8 which has connection terminal 8a connected to an audio equipment like drawing 1, and the lead wire which is connected to a loudspeaker unit 3 and connected to the loudspeaker of another side among two or more lead wire of input code is drawn in case (b) of another side in passage code 10. The slider 11 which adjusts the die length which bundles in this passage code 10 and becomes free [ sliding ].

[0012] It rolls round here and explanation of a means requires. The substrate 12 is being fixed to the anterior part housing 1 on the screw etc. by three hole 12a in this example by case (b) of the side in which input code 9 is drawn first. the spiral spring which the end of a revolving shaft 13 was closed and fixed to the core of a substrate 12, and the reel 14 was fitted [ spiral spring ] in the revolving shaft 13 free [ rotation ], and had both ends fixed by a reel 14 and the revolving shaft 13 -- a spring 15 dedicated to hollow 14a of a reel 14 -- having -- this spiral spring -- a spring 15 is pressed down so that it may not jump out with the presser-foot plate 16, it presses down by the other end of a revolving shaft 13, and falls out from a plate 16 by ring-E 13a, and a stop is made. Three projection 12b is prepared in the field by the side of the reel 14 of a substrate 12 as an example, and when a reel rotates, friction is decreased by carrying out point contact to a substrate 12.

[0013] In the end face of the input code 9 rolled round by this reel 14, the brushes 18a, 18b, and 18c which consist of an elastic metal plate to which lead-wire of L channels 9a of that input code 9, common lead-wire 9b, and lead-wire of R channels 9c were connected electrically, respectively are concentrically attached in the side face of a reel 14. On the other hand, the metal current collection rings 19a, 19b, and 19c corresponding to Brushes 18a, 18b, and 18c are formed in the terminal substrate 17 attached in the substrate 12, and the pressure welding of the brushes 18a, 18b, and

18c is carried out to it. Therefore, even if a reel 14 rotates, the sound signal inputted via input code 9 is transmitted to the terminal substrate 17, without being disrupted by contact sliding, and it consists of terminal substrates 17 so that it may be transmitted to the terminals 3b and 3c of terminal assembly 3a of a loudspeaker unit 3 through lead wire 17a and 17b. Common lead-wire 9b and lead-wire of R channels 9c are connected to the loudspeaker unit in the case of another side (in this case, for right ears) among each lead wire of input code via the passage code 10 which bundles this through the lead wire 17c and 17d electrically connected with these.

[0014] Although it explained that it rolled round and a means was formed in the anterior part housing 1 side here, even if it prepares in a rear housing 2 side, it does not interfere at all.

[0015] A stop means is explained below. Among the flanges of two sheets of a reel 14, irregularity is repeated by serrate, paragraph section 14c quadrisects a periphery in integer partition and this example, and four peripheries of flange 14b by the side of a substrate 12 are prepared. A shaft 20 stands erect in lobe 12c of a substrate 12, and the piece 21 of a stop is attached in this shaft 20 at rotation freedom. Actuation section 21a which the tip of connection terminal 8a of the input plug 8 should contact this piece 21 of a stop A projection, Moreover, it is prepared in the location where stop section 21b contacts the periphery of flange 14b of a reel 14. It is energized by the counterclockwise rotation in drawing 3 by the coil spring 22 hung on 12d of hook sections of a substrate 12 from hook section 21c, and it is constituted so that the pressure welding of the stop section 21b may always be carried out to the periphery of flange 14b.

[0016] Moreover, as a maintenance means, insertion opening 2b is prepared in lobe 2a of rear housing 2, connection terminal 8a of the input plug 2 is inserted from here, and narrow diameter portion 8b near [ the ] the tip can hold now by the lobe of the maintenance spring plate 23.

[0017] The actuation is explained [ in / next / the above configurations ]. Since tip 7a of the lug credit 7 will separate from the anterior part housing 1 if press section 7b of the lug credit 7 is pushed like drawing 7, the posterior part of an ear pinna is hooked and equipped with this. The slider 11 of the passage code 10 is slid up and down, it crosses like drawing 8, and the sag of a code 11 is abolished. Subsequently, if input code 9 is pulled out in the direction of arrow-head A in drawing 3, along with it, a reel 14 will rotate in the direction of arrow-head B. since stop section 21b of the piece 21 of a stop is carrying out the pressure welding to the periphery of flange 14b with the tension of a coil spring 22 at this time, while stop section 21b falls in paragraph section 14c -- and spiral spring -- it rotates, resisting the stability of a spring 15. if the drawer of input code 9 is stopped when die length becomes suitable -- spiral spring -- although a reel 14 is returned to hard flow with an arrow head B according to the stability of a spring 15, it is stopped in the place where stop section 21b fell in

paragraph section 14c, and stops. Then, what is necessary is to insert connection terminal 8a of the input plug 8 in the jack which is the output terminal of the portable audio equipment 24, and just to hear.

[0018] When use tends to be finished and it is going to contain input code 9, connection terminal 8a of the input plug 8 is inserted from insertion opening 2b like drawing 4. then -- since the piece 21 of a stop resists the tension of a coil spring 22 in drawing 4, it rotates clockwise and stop section 21b separates from paragraph section 14c of flange 14b because connection terminal 8a contacts actuation section 21a -- a reel 14 -- free -- it can rotate -- spiral spring -- it rotates in the direction of arrow-head C according to the stability of a spring 15, and input code 9 is rolled round. Under the present circumstances, since the input plug 8 is inserted in insertion opening 2b and held at the narrow diameter portion 8b maintenance spring plate 23 near [ that ] the tip, the input plug 8 is hung by input code 9, does not draw it with sufficient vigor, and it does not have a face, an eye, or contacting the body of the headphone neighborhood in addition to this. Although the maintenance spring plate 23 was formed in the maintenance means here, if it is physical relationship like drawing 4, since the direction of the tension of the rolled-round input code 9 will turn into a direction to which connection terminal 8a of a plug 8 escapes from it, and does not come out of insertion opening 2b, maintenance is possible even if there is no maintenance spring plate 23.

[0019] In addition, although the case where both lugs were equipped here was illustrated, only also in one ear, naturally, it is applicable.

[0020] Moreover, the configuration as headphone is an example, for example, can be easily applied to the headphone using a head strap etc.

[0021] Although this example furthermore explained that serrate irregularity was prepared in flange 14b of a reel 14, components different from a flange may be used. Moreover, although serrate irregularity explained an example which is repeated towards the direction of a periphery, it forms so that it may project in the direction of a right angle from the side face of a flange 14, and the configuration of details can be freely set up as the rotation direction of the piece 21 of a stop is also good also as a thing made to correspond to it.

[0022]

[Effect of the Invention] As explained above, according to the headphone with a code take-up motion of this invention The rolling-up means energized so that it might be built in housing and input code might be rolled round inside housing, A stop means to stop so that it may be annexed to a rolling-up means, and the drawer from said rolling-up means of said input code may be permitted and rolling up by the interior of housing of the input code by the rolling-up means may be prevented, Since it rolls round by having a maintenance means to hold the input plug of input code, and the actuation inserted in order to make the input plug of input code hold for a

maintenance means being interlocked with, and canceling a stop means and a means rolls round input code inside housing, rolling up of input code is easy. The advantageous effectiveness that the headphone which a vigor \*\*\*\*\* input plug did not damage the body at the time of rolling up, and considered insurance can be offered is acquired.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The external view of the headphone with a code take-up motion of 1 operation gestalt of this invention

[Drawing 2] The external view of a place which similarly finished rolling up of the code

[Drawing 3] The top view which similarly looked at the internal structure

[Drawing 4] The top view showing the condition of having inserted the input plug in the maintenance means from the condition of drawing 3 , and having canceled the stop means

[Drawing 5] (a) The sectional view of the housing part of the side which similarly builds in the rolling-up means

(b) The partial expanded sectional view

[Drawing 6] Similarly it is the perspective view of the housing part.

[Drawing 7] The perspective view when similarly equipping a lug with the housing part

[Drawing 8] The perspective view showing the condition of similarly having equipped with these headphone

[Description of Notations]

1 Anterior Part Housing

2 Rear Housing

2b Insertion opening

3 Loudspeaker Unit

5 Pivot Section

5a Pivot

6 Spring

7 Lug Credit

8 Input Plug

8a Connection terminal

9 Input Code

10 Passage Code

11 Slider

12 Substrate

13 Revolving Shaft  
14 Reel  
14b Flange  
14c Paragraph section  
15 Spiral Spring -- Spring  
17 Terminal Substrate  
18a, 18b, 18c Brush  
19a, 19b, 19c Metal current collection ring  
21 Piece of Stop  
21a Actuation section  
21b Stop section  
21c Hook section  
22 Coil Spring  
23 Maintenance Spring